REEXAMINING THE U.S. NAVY PILOT RETENTION CRISIS

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Abstract

While the topic of military aviation retention has continued to be a highly visible topic amongst the congressional armed service committees as well as U.S. military service chiefs,[1] there has been very little scholarly research published in the last 4 years attempting to analyze the problem from any qualitative or quantitative perspective, specifically to identify the primary factors affecting the retention decision of tactical aviation (TACAIR) aircrew. As the national security requirements upon Naval Aviation continue to increase, the U.S. Navy (USN) and the country as a whole cannot afford to have a force hollowed out by a departure of its most experienced warfighters. Consequently, this study has implications for both the fields of traditional security studies as well as human research management (HRM).

This study utilized a sequential mixed methods approach consisting of qualitative interviews and a quantitative survey to answer the following research question: *what are the primary factors affecting the retention decision of USN TACAIR aviators?* This study discovered that the primary factors affecting aviators' decisions were related to overall job satisfaction and not economic/financial reasons, challenging the commonly cited notion that airline hiring/financial pay disparities are the primary reasons for why aircrew choose to leave the military. These results should provide a foundation from which policymakers can develop mitigation strategies to ensure that the USN can retain its most qualified aircrew.

Primary Reviewer: Dr. Sarah Clark

Secondary Reviewers: Dr. Robert Worley and Professor Thomas Greenwood

[1] Brenda S. Farrell, "DOD Needs to Reevaluate Fighter Pilot Workforce Requirements" (Washington, D.C.: United States Government Accountability Office, 2018).

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Introduction

Since the airplane has been a weapon of warfare, the ability to project power from the air has been critical to the United States (U.S.) military's ability to effectively enforce and promote U.S. policy around the globe. Over the last 30 years, the U.S. has established air superiority in every major conflict involving U.S. forces due to technical superiority and the skill of American aviators. However, currently, the United States Navy (USN), United States Marine Corps (USMC), and United States Air Force (USAF) are facing a critical pilot shortage in the TACAIR[2] community.[3] This issue has been addressed at the congressional level through the respective Armed Service Committees in both the U.S. Senate and House of Representatives as well as the executive level through the signing of Defense Authorization Acts. The question at the forefront of these discussions is why military aviators are leaving the uniformed services and why there are manning shortfalls across the military aviation enterprise.

The purpose of this study is to discover the primary factors affecting the retention of USN TACAIR aviators in order to provide a foundation for future study of strategies and policy recommendations for USN leadership to counter the retention crisis. The necessity of this study is not lost upon senior USN, USAF, and USMC leadership as the need for a solution directly influences the resiliency and ability of the air forces to meet the future needs of Combatant Commanders.[4] Previous solutions offered by Congress and military leadership have been primarily focused on financial incentives meant to retain the aforementioned aviators from leaving the service for the higher pay found in employment by U.S. airlines and the private

[2] TACAIR refers to the type of aircraft to include F-35, F/A-18, F-22, F-15, F-16, and A-10.

[3] Brenda S. Farrell, "Collecting Additional Data Could Enhance Pilot Retention Efforts" (Washington, D.C.: Government Accountability Office, 2018).

[4] H.A.S.C. 2017.

sector.[5] However, as the personnel chiefs of each of the uniformed services have alluded too, there are other factors at play.[6] Thus, this study applied a sequential mixed methods research design in order to discover the primary drivers of military aviators' decisions to leave the service.

Literature Review

The first step in solving a crisis or seeking a solution must be an attempt to understand the complete nature of the problem to include the factors that have led to the formation of the problem. The current retention issue is by no means neoteric with similar periods of low retention immediately following varying points since the 1950s. Thus, it is essential to review the literature analyzing these periods in addition to examining the broader retention literature across all government organizations. From this literature, certain factors seem to be consistently addressed. These can be sub-divided into economic factors and what I will call miscellaneous factors, which include issues such as overall job satisfaction, personnel tempo, quality of life, etc... However, as will be demonstrated, current research gaps exist primarily based on a lack of current data and a subsequent lack of analysis.

Economy

The economy and the strength/weakness of the commercial airline industry historically have greatly affected the retention of mid-level career fighter pilots. For example, during a statistical review of airline hiring relative to number of eligible USAF pilots, relative military to civilian compensation, and USAF pilot manning from 1980-1991, researchers discovered these factors highly affected USAF pilots' decisions to continue their careers or resign their

[5] Farrell, "Collecting Additional Data Could Enhance Pilot Retention Efforts." Guy M. Snodgrass, "Keep A Weather Eye On The Horizon," *Naval War College Review* 67, no. 4 (2014): pp. 64-92. Brice Stone et al., "Air Force Pilot Retention: Evaluating the Results of Alternative Models," *Armed Forces & Society* 25, no. 1 (1998): pp. 121-135, https://doi.org/10.1177/0095327x9802500107.

[6] H.A.S.C. 2017.

commissions.[7] According to Snodgrass and Maue, this decision largely rests on the factors of career earning potential, the disparity of bonus structures between the military and airlines, and work structure/time away from home.[8] Just as in the early 1990's hiring spree by the airline industry, airlines are once again hiring due to shortages of commercial pilots further exacerbating the hemorrhaging of mid-career fighter pilots.[9] However, based on the current economic downturn, this correlation needs to be analyzed to see how the health of the economy affects airline hiring and military pilot retention. Thus, this study researched and analyzed how the state of the economy factors into current pilot decisions.

While no research could be found specifically answering the question posed in the last sentence, studies have asked a similar question in terms of overall federal and state government employment. In a 1998 study on the growth of government employment, Bellante and Porter discovered through quantitative analysis of government employment since World War II that the relative and absolute growth of government employment compared to the private sector has overwhelmingly taken place during recessions.[10] In other words, in a recession, private employment generally decreases as companies offload payroll while government employment continues to increase. This seemingly correlates to a purely economic interpretation of the military retention issue whereby a growing economy would lead to a higher percentage of

[7] Stone et al., "Air Force Pilot Retention," pp. 127.

[8] Brian E. A. Maue, "Why We Should End the Aviator Continuation Pay Bonus Program," Air & Space Power Journal, 2008, pp. 96-98. Snodgrass, "Keep A Weather Eye On The Horizon," pp. 78.

[9] Farrell, "Collecting Additional Data ." Farrell, "DOD Needs to Reevaluate Fighter Pilot," pp. 20-22. Sam Meredith, "Boeing CEO Says a Global Pilot Shortage Is 'One of the Biggest Challenges' Facing the Airline Industry," June 18, 2019, https://www.cnbc.com/2019/06/17/boeing-ceo-says-global-pilot-shortage-is-one-of-the-biggest-challenges.html.

[10] Don Bellante and Philip Porter, "Public and Private Employment Over The Business Cycle: A Ratchet Theory of Government Growth," *Journal of Labor Research* 19, no. 4 (1998): pp. 626, https://doi.org/10.1007/s12122-998-1052-9.

government employees (military aviators) leaving for the private sector and vice versa. However, as indicated by the personnel chiefs of the Army, Navy, Marine Corps, and Air Force, there is a current lack of qualitative or quantitative data from exit surveys and surveys of active duty aviators to determine whether this correlation is accurate.[11] Additionally, a recent GAO report concludes that the services' lack of sufficient data "limits a full understanding of the extent to which airline market conditions have influenced pilot retention."[12] Thus, this research examined whether aviators considered airline market conditions in their decision to stay or leave the military.

Miscellaneous Factors

In addition to economic factors, studies in the realm of psychology and human resource management (HRM) have identified other factors that affect career change decision making to include training and development (T&D), communication, and quality of life. While most of the literature on these subjects revolve around the civilian sector, there are salient points to be understood within the context of military retention. In terms of definitions, the aforementioned factors will all be categorized under the umbrella of job satisfaction. Schleicher, Hansen, and Fox characterize job satisfaction as a positive feeling or perception of one's career that matches the individual's expectation for what the desired outcome should be.[13] In essence, job satisfaction is a state of contentment by an employee with their work.[14]

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[11] H.A.S.C. 2017

[12] Farrell, "Collecting Additional Data," pp. 4.

[13] Deidra J. Schleicher, Duane S. Hansen, and Kevin E. Fox, "Job Attitudes and Work Values," in *APA Handbook of Industrial and Organizational Psychology*, ed. Sheldon Zedeck, vol. 3 (Washington, DC: American Psychological Association, 2011), pp. 137-189, https://doi-org.proxy1.library.jhu.edu/10.1037/12171-004.

[14] Edwin A. Locke, "The Nature and Causes of Job Satisfaction," in *Handbook of Industrial and Organizational Psychology*, ed. Marvin Dunnette, 2nd ed. (Palo Alto, CA: Consulting Psychologists Press, 1990), pp. 1297-1349.

Based on the point that the perception of job satisfaction relies upon psychological perception or state of feeling, it is important to understand how particular personalities are affected by certain factors when it comes to evaluating job satisfactions' role in retention. While there is little literature that specifically addresses how job satisfaction affects military members within the HRM field, correlations can be made between certain personality types and retention rates across the civilian sector and military aviation. In a study on the psychological traits of military pilots, Chang et al. discovered that military pilots demonstrated a statistically significant degree of extraversion, which "is defined as being assertive, active, talkative, upbeat, energetic, optimistic, and exhibiting a high level of novelty-seeking behavior.[15] While this study certainly does not purport to generalize an entire population as extraverted, the discovery provides a foundation from which to compare job satisfaction's affect against the majority of the population.

Prabhu's work in the HRM field specifically analyzes how certain factors affect "proactive personalities" "intent to remain" with an organization.[16] As described by Prabhu, proactive behavior includes a "dynamic approach toward work, seeking to improvise the existing job along with developing personal prerequisites for furthering career success and organizational effectiveness." It characterizes people who take charge and exhibit personal initiative.[17] Furthermore, as Bateman and Crant define, "proactive personalities" are those people who "take

[15] Mei-Chung Chang, Ting-Hsuan Lee, and For-Wey Lung, "Personality Characteristics of Fighter Pilots and Ground Personnel," Military Psychology 30, no. 1 (February 2018): pp. 75, https://doi.org/10.1080/08995605.2017.1420977.

[16] Veena P. Prabhu, "Proactive Personality and Organizational Change: Factors Affecting Retention," *Journal of Organizational Psychology* 16, no. 1 (2016): pp. 11.

[17] Ibid., 12.

action to influence their environment".[18] Based on a cursory comparison of Chang et al. and Prahbu's definitions of the aforementioned personality types, Prahbu's study can aid in analyzing the psychological factors affecting the retention of military pilots.

The results of Prabhu's study elucidated three factors that resulted in organizations retaining proactive personalities: proactive communication, organizations who foster a willingness for dynamic change, and job satisfaction. Each of these increased the likelihood of an employee staying with a company.[19] Proactive communication from organizational leadership has been demonstrated to have a causal link between how employees perceive how much an organization cares about their well-being. This sentiment manifests itself primarily in perceived supervisor support (PSS) and perceived organizational support (POS) from the viewpoint of the employee.[20] PSS and POS are intrinsically linked due to supervisors' positional authority as agents of the organization.[21] Thus, employees who perceive that their supervisors care about their well-being and career have an increased sense of obligation to the organization, which in turn reduces turnover.[22] Based on these findings, the study sought to evaluate the viewpoints of Naval Aviators towards naval leadership in order to determine whether leadership had any effect on the decision to stay or leave the Navy.

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[18] Thomas S. Bateman and J. Michael Crant, "The Proactive Component of Organizational Behavior: A Measure and Correlates," *Journal of Organizational Behavior* 14, no. 2 (1993): pp. 103, https://doi.org/10.1002/job.4030140202.

[19] Prabhu, "Proactive Personality and Organizational Change," pp. 17).

[20] Robert Eisenberger et al., "Perceived Supervisor Support: Contributions to Perceived Organizational Support and Employee Retention," *Journal of Applied Psychology* 87, no. 3 (2002): pp. 565, https://doi.org/10.1037/0021-9010.87.3.565.

[21] Ibid.

[22] Linda Rhoades, Robert Eisenberger, and Stephen Armeli, "Affective Commitment to the Organization: The Contribution of Perceived Organizational Support.," *Journal of Applied Psychology* 86, no. 5 (2001): pp. 825-836, https://doi.org/10.1037/0021-9010.86.5.825.

In terms of T&D, perceived T&D has been associated with higher levels of retention in the civilian sector[23] due to its ability to strengthen the relationship between the employee and the employer.[24] Employee development creates an environment where employees genuinely believe that the organization values them. Consequently, this investment by the employer has a secondary effect of increasing the sense of obligation of the employee to the employer and results in increased dedication on behalf of the employee to increase the organization's effectiveness.[25] This relationship between T&D and retention is best illustrated by Russel's model of core effect which consists of 4 possible work attitudes towards T&D. Perceived T&D can lead to positive attitudes of "employee engagement and job satisfaction." On the other hand, it can also evince negative emotions such as "emotional exhaustion and change-related anxiety".[26]

Based on a higher degree of investment by organizations in the T&D of employees, employees of these companies feel less of the negative emotions present in Russel's model of core effect. This occurs due to various reasons. First, increased training results in employees perceiving that the organization has done everything in its power to provide the necessary skills

[23] Herman Aguinis and Kurt Kraiger, "Benefits of Training and Development for Individuals and Teams, Organizations, and Society," *Annual Review of Psychology* 60, no. 1 (2009): pp. 451-474, https://doi.org/10.1146/annurev.psych.60.110707.163505.

[24] Anders Dysvik and Bård Kuvaas, "The Relationship Between Perceived Training Opportunities, Work Motivation and Employee Outcomes," *International Journal of Training and Development* 12, no. 3 (2008): pp. 138-157, https://doi.org/10.1111/j.1468-2419.2008.00301.x. Chay Hoon Lee and Norman T. Bruvold, "Creating Value for Employees: Investment in Employee Development," *The International Journal of Human Resource Management* 14, no. 6 (2003): pp. 994, https://doi.org/10.1080/0958519032000106173.

[25] Lee and Bruvold, "Creating Value for Employees," pp. 981.

[26] James A. Russell, "A Circumplex Model of Affect.," *Journal of Personality and Social Psychology* 39, no. 6 (1980): pp. 1161-1178, https://doi.org/10.1037/h0077714.

to perform their job.[27] Consequently, change-related anxiety decreases. Second, by perceiving more opportunities for training, the employee's intrinsic psychological needs of meaningfulness, safety, and availability are met, resulting in increased dedication to their work and intent to stay.[28] With these examples in mind, the question becomes whether the military, specifically fighter pilots have the same feelings towards the T&D strategies of the military.

Mitigation Strategies

In order to affect the overall retention rate of military pilots and despite a lack of substantial quantitative or qualitative data to justify the expenditures, the military continues to attack the issue largely through incentives like the Aviation Career Incentive Pay (ACIP) and Aviation Career Continuation Pay (ACCP). In order to bridge the gap of pay and benefits between the airlines and the military, the military has offered ACIP and ACCP aimed at closing the earning gap.[29] However, according to Mattock et al., these balancing measures generally lag behind the pay increases experienced by airline pilots, further expanding the pay gap between the airline industry and the military.[30]

In terms of efficacy, while studies have demonstrated that increases in relative military pay have correlated to an increase in pilot retention,[31] the last expansive empirical study on the

[27] Luke Fletcher, Kerstin Alfes, and Dilys Robinson, "The Relationship Between Perceived Training and Development and Employee Retention: The Mediating Role of Work Attitudes," *The International Journal of Human Resource Management* 29, no. 18 (2016): pp. 2701-2728, https://doi.org/10.1080/09585192.2016.1262888. Lee and Bruvold, "Creating Value for Employees."

[28] Fletcher et al., "The Relationship Between Perceived Training and Development and Employee Retention."

[29] Maue, "Why We Should End the Aviator Continuation Pay Bonus Program," pp. 95. Michael L. Hansen and Michael J. Moskowitz, "The Effect of Compensation on Aviator Retention" (Alexandria, VA: CNA, 2006) pp. 20-22.

[30] Michael G. Mattock et al., *Retaining U.S. Air Force Pilots When the Civilian Demand for Pilots Is Growing* (Santa Monica, CA: RAND Corporation, 2016) pp. 58-60.

[31] Hansen and Moskowitz, "The Effect of Compensation," pp. 23-24

efficacy of increases in pay corresponding to retention was in 2005. Additionally, the aforementioned study did not examine other variables or factors that could possibly have increased the retention of military pilots during that period of time. Thus, further research is needed to examine the issue as it relates to the current economy as well as including other potential factors.

In addition to increased pay, each of the three primary TACAIR services identified increased flying time, location flexibility, and increased time on home station as primary contributors to the retention rates of TACAIR aviators.[32] Accordingly, each service has sought to implement strategies to mitigate the effects of these identified factors. The USN in particular has sought to increase flying time through implementing measures aimed at getting down jets flying again. However, no study has been conducted to judge the efficacy of these measures in terms of influencing pilot retention decisions.

Discussion

The literature surrounding military aviation retention commonly cites potential employment by civilian airlines as a primary factor in the decision-making process for mid-career aviators leaving military service. However, the last thorough, empirical study examined data from the late 1990's to 2005. Since that period of time, the economy of the United States has experienced economic downturn that included a downturn in the airline industry following 9/11. Furthermore, since this period of examination, the economy has subsequently rebounded and entered another period of uncertainty with the COVID-19 pandemic. The gap in the literature in terms of time must be reexamined to understand the role airline hiring is playing

[32] Farrell, "DOD Needs to Reevaluate Fighter Pilot," pp. 36-37.

today and whether it remains a primary factor in the decision-making process of military aviators.

Furthermore, recent literature fails to adequately address other factors such as the role of increased deployment length, a perceived failure of senior leadership, a risk adverse culture, a crisis of purpose manifested in the inordinate amount of time spent on administrative duties versus acquiring warfighting skill, as well as overall job satisfaction, and communication. As demonstrated by the aforementioned HRM literature, perceived T&D plays a substantial role in the intent to stay. However, no study has sought to inquire whether perceived T&D, POS, or PSS plays a substantial role in the decision making of Naval Aviators' intent to stay. Consequently, this study investigated whether these additional factors or more traditional factors continue to influence the retention issue.

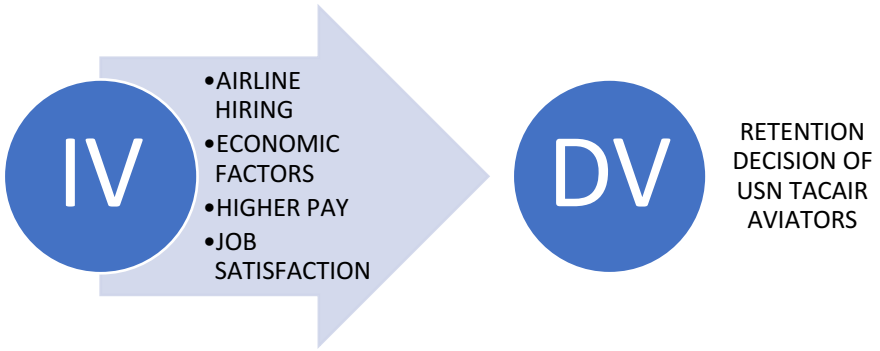
Research Question and Hypothesis

Based on the gaps in the current literature surrounding the aforementioned issue of retention, it was necessary to evaluate other factors affecting the retention decision making of military pilots. Thus, this research sought to answer the following research question: what are the primary factors (IV) affecting the decision of USN TACAIR aviators to stay or leave the USN (DV)?[33] As mentioned in the H.A.S.C. 2017 testimony on military aviator retention, the USN is by far the most lacking in any quantitative or qualitative data on the subject of military aviator retention. Thus, this study seeks to focus primarily on the USN for this reason. Additionally, based on assessments from the military personnel service chiefs as well as exit surveys mentioned in the aforementioned hearing, data suggests that economic factors may not be the primary drivers of retention.

[33] See Figure 1

However, due to a lack of data surrounding this issue, I utilized an inductive approach in order to flesh out the factors cited by current Naval Aviators. Based on the body of literature from the HRM field, I hypothesized that a lack of overall job satisfaction is the primary factor affecting aviators' decisions rather than economic factors. Conversely, my null hypothesis assumed that job satisfaction has no effect or less than a significant effect on the decision making of Naval Aviators as they decide whether to stay or leave the military. With these hypotheses in mind, if policy makers implement strategies to correct the aforementioned factors, there should be an increase in the overall retention of Naval Aviators.

Figure 1: Arrow Diagram



Research Methodology

In order to determine the primary factors affecting the decision making of USN TACAIR aircrew, I utilized a sequential mixed methods approach consisting of a qualitative interview of USN TACAIR aviators and a 30 question survey that averaged 3-5 minutes for completion. While narrowing the focus to only USN TACAIR aircrew induces a lack of generalization for other armed services, this study provides direct feedback to USN leadership and a potential data

point from which other services can conduct follow-on studies. The qualitative interviews were conducted first in order to inductively deduce the primary factors cited by the subject population. Following the completion of 9 interviews and subsequent analysis, I constructed the quantitative survey in order to generalize the findings of the qualitative interviews.

In order to establish a 95% confidence level based on an approximate population size of 300 (N=300), this survey required a sample size of 200 respondents (n=200) with a confidence interval of 4%. However, based on limitations due to the amount of aircrew deployed as well as implications from the COVID-19 virus, this survey only had 43 respondents (n=43) at the time of this writing, greatly reducing the confidence level. Although this corresponds to merely 14% of the targeted population, this data when combined with a previous sample from March 2020 combines to produce a sample of nearly 35% of the total population.[34] Since the March 2020 sample, the economic effects of the COVID pandemic have become more pronounced adding a greater necessity to see what effects COVID may have had on the conclusions gleaned from the previous study.[35] Furthermore, in order to account for the most recent sample and its small size, I utilized a finite population correction in order to adjust the variance of the sample.

Operationalization of Variables

In order to determine which factors would be included in the quantitative survey design, I conducted an inductive analysis of the responses given in the qualitative interviews. During the interview, I took notes on any factor cited by the respondent in relation to the discussion on retention of USN TACAIR pilots. Once the interview was complete, I transferred the written

[34] Aaron Trodahl, "A Reexamination of the Naval Aviator Retention Crisis" (Johns Hopkins University, April 2020).

[35] Ibid.

notes into a Word document, which allowed me to tabulate a code count for each factor. Additionally, with the permission of each interviewee, I recorded the interview for future review, in order to ensure that the code counts accurately reflected what was stated by the respondent. In terms of operationalization of the variables discovered in the interviews (see Figure 2), the dependent variable was operationalized by asking respondents if they had made a decision to stay or leave the military. By breaking the DV up into three sub-groups, Staying in/Getting out/Undecided, the research design evaluated which factors affected the decision the most for each sub-group of the DV.

In addition to the DV, the study sought to operationalize antecedent variables (AV) that could have potentially affected the DV. These included the number of years left till they fulfilled their obligated service[36] as well as rank, family data, and whether the respondent had completed any specialized schooling in the military. Each of these AVs were nominally measured.

Figure 2: Operationalization of Variables

Variable	**Concept**	**Definition**	**Measurement**
Dependent Variable	Decision of TACAIR Aviators on Retention	Choice possibilities for aviators	• Staying In (1) • Getting Out (2) • Undecided (3)

Independent Variables	Factors affecting retention	• Airline hiring
		• Increased earning potential
		• Economic
		  • ACIP
		  • Military Retirement
		• Job Satisfaction
		  • Pers tempo
		  • Mission Fulfillment
		  • FMC Jets
		  • T&D
			Each factor was measured via a feelings thermometer in order to assess how much it affected their decision 0 (not at all) to 100 (very much).

[36] The end of obligated service corresponds to the time at which an aviator has met his service commitment and can resign their commission, effectively getting out of the U.S. Navy.

		• Nonflying Duties • PSS/POS • Family Effects • PSS/POS of Navy Leadership	
Antecedent Variables	Biographical data	• Obligated Service • Rank • Family type • Specialized Career Schools	Nominally measured

In order to quantify the degree to which certain factors (IV) cited in the literature and in the interviews affected the retention decision, the survey included interval measures utilizing feelings thermometers to measure the degree to which military aviators included the specific IV in the decision-making process to leave or stay in the military. The scale ranged from 0 (Not at All) to 100 (Very Much). For the purposes of the study, I considered anything with a mean greater than 75 has having a "significant" effect on the DV. The study examined the 4 primary IVs of airline hiring, potential for increased pay, the economy, and job satisfaction. Besides the specific factors of airline hiring and potential for increased pay, the study sought to analyze the additional effects of economic related factors on the retention decision by examining how much respondents considered the economy in general, ACIP, and military retirement. In terms of job satisfaction, this variable was further operationalized into the sub-groups of personnel tempo,[37]

[37] Personnel tempo is defined for the purposes of this study as the frequency of deployments and time spent away from home on various training exercises during a given period of time.

mission fulfillment,[38] fully mission capable jets,[39] training opportunities/tools (T&D), nonflying duties (the amount of duties not associated with flying),[40] communication and support by leadership (POS and PSS), and the role of family commitments on their job satisfaction.

Sample Group

In order to recruit from the desired sample group this study relied upon a standardized recruitment message for both the interviews and surveys that was sent via text message and individual squadron group messaging chats to Naval Aviators stationed at bases on the west and east coast to include: Naval Air Station (NAS) Lemoore, CA, Naval Air Weapon Station China Lake, CA, NAS Fallon, NV, NAS Key West, FL, NAS Meridian, MS, NAS Kingsville, TX, and NAS Oceana, VA. I relied upon contacts at these locations to informally promulgate the recruitment message to members via text and squadron group chats. In order to obtain data that most specifically relates to members of the subject population who are currently or within a close proximity to the decision to stay or leave the USN, I specifically targeted aviators who were within 0-3 years of their end of service obligation, essentially the point at which they can leave the military. I accomplished this by primarily recruiting aviators who were in their shore tour.[41]

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[38] Mission fulfillment is defined for the purposes of this study as the belief on the part of the aviator that he/she is accomplishing the perceived mission of a TACAIR Naval Aviator.

[39] Fully mission capable jets represent the number of aircraft that have all the systems and capabilities to conduct the required tactical training to be combat ready.

[40] Nonflying duties is defined for the purpose of this study as the collateral duties a Naval Aviator is responsible for in addition to his/her flying duties. These duties do not directly make a Naval Aviator more capable as a pilot or tactician. Types of these duties include: schedule writer, division officer (lead maintenance personnel), voting officer, laser safety officer, etc… This is contrasted with flying duties which includes: studying tactics, preparing for a flight, briefing, debriefing, and executing a flight.

[41] The career of a Naval Aviator can be broken up into distinct phases. Immediately following his/her commissioning as a United States Naval Officer, the officer spends approximately 2 years completing flight school, which culminates with the officer being designated as a Naval Aviator. Next, the TACAIR Naval Aviator will proceed to another 1-2 years of specific training in the F-18/F-35. Following this period, the Naval Aviator will spend 3 years in a Fleet squadron in a deployable status. Once this time is complete, the Naval Aviator will transfer to a 3-year shore tour, which primarily involves instructing pilots in some form. It is in this shore tour that aviators

This form of recruitment inevitably led to several potential biases. First, based on the sensitivity of this particular issue over the last few years, respondents and potential respondents have seen numerous voluntary surveys on topics similar to the aforementioned one, potentially creating apathy on the part of a large subset of the population. The latest round of data collection was especially affected by this. I sent out an almost identical survey for the completion of a quantitative analysis of the retention issue for a prior graduate school class. Thus, based on informal conversations with the sample group, several people made mention that they had already filled out the survey, referring to the previous survey, which had 69 responses.

While this drastically reduced the number of responses for the second survey, it did not necessarily affect the quality and independence of the sample size. The recruitment of individuals for this round of data collection targeted new groups to include NAS Meridian, MS, NAS Kingsville, TX, and NAS Oceana, VA, which were either not included in the previous study or were under sampled. Additionally, due to extensive job-related requirements as well as the effects of COVID, a subset of the population could have chosen to not participate based on a perceived lack of time, the inability to participate due to operational commitments, or simply choosing not to participate. Thus, the respondents who participated could be those with extreme views biasing the data and potentially neglecting a group of the population.

Secondly, by trusting and relying on contacts and acquaintances to send the link to the survey, the author had no control over who was selected after initial selection, which could lead to selection bias on the part of the contact. In order to mitigate this, I provided directions in the recruitment message that asked each of the representatives to post the message to their squadron junior officer group chat, which includes all pilots in their squadron who generally fall within the

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are typically within 3 years of meeting their initial service obligation where they will then choose whether they want to stay or leave the USN.

targeted population. Additionally, by selecting contacts at all the major USN fighter bases, I attempted to mitigate any potential selection bias based on duty station. Lastly, due to my own rank as a USN Lieutenant (O-3), my contacts were primarily the same rank. While this skewed the respondents to primarily O-3 respondents, this aided in targeting the primary desired group as discussed in the 2018 GAO report on the retention of military fighter pilots.[42]

Furthermore, the survey included selection bias in terms of the factors chosen to analyze, which could potentially have neglected other pertinent IVs. In order to mitigate this potential, I conducted qualitative interviews with 9 randomly selected respondents in order to inductively deduce which factors were most commonly cited by this group. It is certainly plausible that this select group did not elucidate every potential factor, which may have prevented every possible factor being included in the quantitative survey as well. However, in order to minimize this possibility, I provided one nominal question in the quantitative survey that allowed the respondent to cite any other factors that he/she considered.

Lastly, there is always the limitation inherent in surveys, which relies on the subjective answers of the respondents not paired to any empirical evidence confirming that the respondent's views are truly descriptive of what he/she feels or acts on. Consequently, the respondents could have ranked certain factors higher over others that actually affected their decision making more, which would lead to skewed survey results and subsequent inaccurate statistical analysis. In order to mitigate potential reasons for why a respondent would act in this way, both in the qualitative interviews and the quantitative survey, the consent forms made clear that the research participant would be in no way linked to the actual data reported in the study. This method was

[42] Farrell, "DOD Needs to Reevaluate Fighter Pilot," pp. 19.

utilized in order to remove any fear of potential retribution from senior officers for their responses.

Tools

Following the completion of the interviews, I examined the notes taken from the audio recordings in order to elucidate any repeated factors. Utilizing the simple search functionality of Microsoft Word, I copied all factors mentioned by the interviewees and formulated them into a survey design designed specifically to include the factors mentioned in the interviews. Once the interviews were complete, I executed the survey.

After executing the survey, I transformed the answers to correspond to a numeric code from 0 to 100 and imported the data into a statistical analysis program (Stata), generating variables based on the data collected in the survey. In order to discover which IV's were considered the most by respondents, I first attempted to examine the central tendency between the four IVs and the associated subfactors by utilizing summary statistics to generate the means of all the variables. With this information, I then evaluated how subgroups of the DV interacted with the aforementioned variables. By cross tabulating the variables and examining the strength of the relationship between these subgroups and the five variables with the closest mean to 100, I was able to examine the the distribution and relationship of the five variables with the three subgroups of the DV. These steps highlighted the factors that most greatly affected an aviator's decision, specifically as it related to the decisions of stay in, leave, or undecided.

Following these steps, I determined whether to reject the null hypothesis that there is no statistically significant relationship between the five aforementioned IVs and an aviator's decision. In order to do so, I evaluated the five IVs utilizing a single sample "t test" against a theoretical value of greater than 75. This value represented the arbitrarily set point at which an

aviator considered the factor significantly more when deciding when to stay or leave. Since the purpose of the study was to elucidate the greatest factors affecting the pilot retention decision, I arbitrarily set a mean threshold of 75 to distinguish the greatest factors from those less significant. Thus, the null hypothesis would result in a mean less than 75. The primary risk in doing this was the neglecting of factors that did factor into the decision calculus albeit at a lesser degree. Additionally, this method does not allow for a way to account for a potential congruence of lesser factors that when combined could significantly affect the retention decision. However, by opening up the range from 0 to 100, this allowed respondents a greater degree of fidelity when quantifying how much the factor affected their decision, allowing a clearer understanding of which factors most greatly affected the DV.

Analysis

Central Tendency

In analyzing the central tendency, I found the highest means from the IVs and their subgroups, which corresponded to the factors that respondents selected as having the greatest effect on their decision. The sense of mission fulfillment had a mean of 85.3 followed by Executive Officer (XO) and Commanding Officer (CO) leadership with a mean of 84.6. Next, the amount of nonflying, administrative duties factored the most with a mean of 84.4 with the perceived support of the XO and CO having a mean of 83.7. Lastly, the ability to control one's future had a mean of 83.5, which was the last mean greater than the benchmark of 75.[43] Of note, each of these are sub variables of the "job satisfaction" IV. Particularly noteworthy, airline hiring had a mean of 71 with career earning potential having a mean of 64. In terms of economic

[43] See Figure 3

factors, the general state of the economy had a mean of 47, ACIP a mean of 38, and military retirement a mean of 54.[44] ACIP had the second lowest mean of all factors analyzed.

Additionally, by cross tabulating each of the aforementioned variables against the DV, I was able to discover the percentage of the sample who viewed that factor above the 75 mean threshold. In the case of mission fulfillment, 83% of the 41 respondents ranked the factor above a 75. Of note, 79% of the those who indicated that they would leave the Navy and 88% of those who were undecided ranked the factor above the mean threshold of 75. In terms of the respondents' views on XO/CO leadership, 80% of respondents ranked this variable above the 75 mean threshold with 84% of those who stated their desire to leave the service considering this factor above a mean of 80. 81% of those who were undecided considered the factor above a 75.

Continuing with the PSS of squadron leadership, 73% of respondents ranked this variable above the 75 thresholds with 68% of those who had decided to leave considering it above the 75 threshold. Of those who were undecided, 75% ranked the factor above 75. In terms of respondents' views on nonflying duties, 80% of respondents ranked the variable above the 75 threshold with 84% of those deciding to leave ranking it above 75. Of those who were undecided, 81% ranked the factor above a 75. Lastly, in the case of the ability to control one's future, 78% of the 41 respondents ranked the factor above a 75. Of note, 89% of the those who indicated that they would leave the Navy and 81% of those who were undecided ranked the factor above the mean threshold of 75.

[44] See Figure 4

Figure 3: Central Tendency

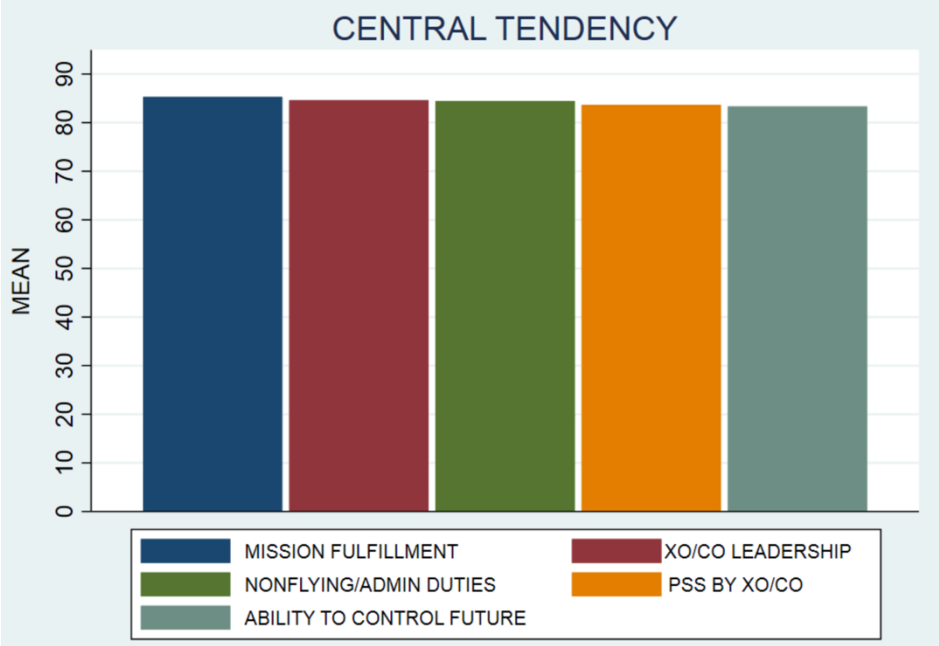
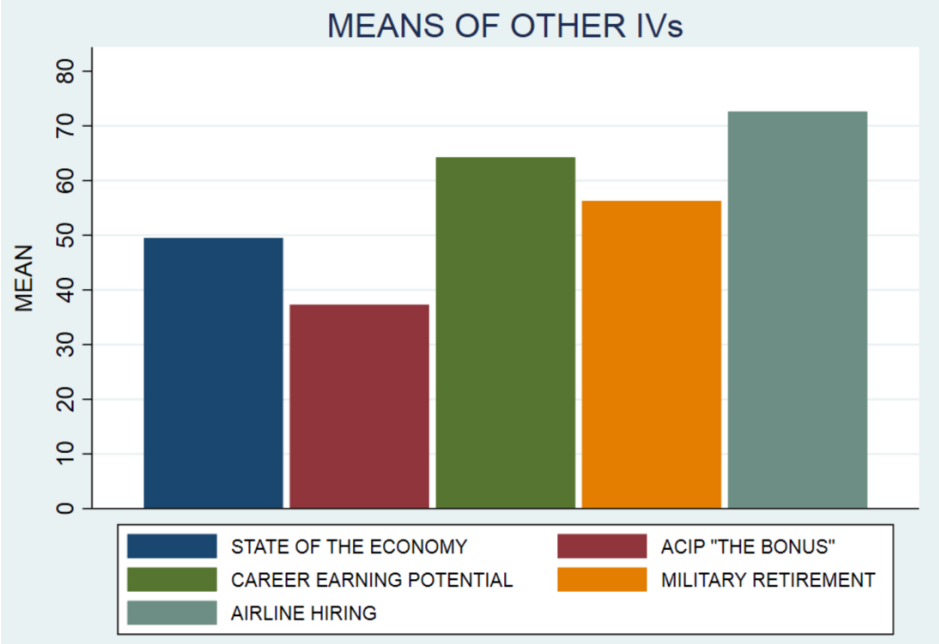


Figure 4: Means of Other IVs



Statistical Significance

In order to test for the statistical significance and make inferences against the null hypothesis, I conducted single sample t tests with a 95% confidence interval on the 5 factors

previously discussed as having the central tendency of the data greater than the hypothesized mean of 75. This number corresponds to the point at which the variable would be considered significant. In terms of the variables mission fulfillment, XO/CO leadership, nonflying/administrative duties, PSS by XO/CO, and the ability to control your future) the p-values equaled 0.0002, 0.0003, 0.0024, 0.0003, and 0.0157 respectively. With each of these values being less than 0.05, the means for the aforementioned variables can be considered statistically significant.

Assessment and Evaluation

The purpose of this study sought to discover the factors that most affected the decision-making calculus of USN TACAIR aviators when considering to stay or leave the military. Based on the data, the majority of respondents selected the following variables as having the greatest impact on their decision to stay or leave the military: mission fulfillment, XO/CO leadership, nonflying duties, PSS of XO/CO, and the ability to control one's future. In contrast, ACIP factored the least followed closely by the overall state of the economy. The stated hypothesis argued that job satisfaction was the primary factor driving the retention decision, which corresponded to the results of the study.

Qualitative Interviews

In analyzing the qualitative interviews in light of the survey results, several trends are noteworthy. First, the overall perception by interview participants of how the USN as an organization has handled retention of USN TACAIR aviators was best characterized as abysmal. There was not one participant who believed that the organization and senior leadership had handled the issue of retention and the concerns of junior officers in an effective or productive

manner. This corresponds to the results of the survey with all respondents stating that there was a retention problem in the USN TACAIR community.

Secondly, respondents commonly cited leadership both positively and negatively as a primary factor in the decision to stay or leave the military with positive experiences heavily influencing interviewees' decisions to stay in and negative experiences being a primary reason why interviewees were considering leaving the military. Due to the subject population being primarily USN Lieutenants (O-3), most of their interaction had been limited to their squadron leadership (XO/CO), which is where most of the discussion centered on. Interview participants characterized "good leaders" as those who focused on their own tactical proficiency and the proficiency of their squadron with the emphasis on administrative duties being subservient. The "good ones emphasized fighter skills and cut down on collateral duties." Furthermore, good leaders stood up for their people despite what senior leadership (O-6 and above) desired, even at the risk of their own career. Any perceived failure to do this led participants to characterize squadron leadership as "self-centered", "yes men", "selfish", "looking for a good FITREP", or only looking to "tow the company line."

In addition to leadership featuring heavily in interview participant's answers, the amount of nonflying duties was commonly cited as one of the greatest factors affecting job satisfaction. As one participant commented, "Ground jobs are the biggest hindrance to getting our job (pilot) done." When asked to quantify how much time they spent on nonflying duties versus flight duties, 8 of 9 interview participants stated that in their first operational tour the majority of their day was spent on nonflying duties, which was always discussed in a negative connotation by the interview participant. This was during a time where they stated their primary aim should have been becoming more tactically proficient/better at their primary job of flying. Lastly, participants

tied the sense of mission fulfillment generally to a perceived incongruence between the believed purpose of a Naval Aviator and the actual day to day life of a Naval Aviator. In other words, the aviators interviewed believed there was an imbalance between the perceived priorities of leaders and the beliefs of what the priorities should be.

Quantitative Survey

Based on the evaluation of the tests of significance on the variables against the predetermined value representing greater than 75, the variables of mission fulfillment, XO/CO leadership, nonflying duties, PSS of XO/CO, and the ability to control one's future were statistically significantly different from the null hypothesis value of 75, leading the study to reject the null hypothesis of no relationship between these two variables and accept the stated hypothesis.

As mentioned earlier, a similar survey was conducted in March of 2020 while the effects of the COVID impact on the global economy and the airline industry were still yet to be fully understood. Thus, it is worthwhile to compare the results of that survey with the current sample. In the previous study, the amount of nonflying duties and an overall sense of mission fulfillment factored the most in the retention decision making of that sample group. It is important to note that the previous study did not provide respondents a greater fidelity in terms of selecting how much certain factors affected the decision. Additionally, it did not examine the role of leadership in the sense of overall job satisfaction. Despite these differences, there appears to be a correlation between the results of the previous survey and the data collected for this particular study.

As cited in the qualitative interviews, leadership and nonflying duties factored heavily in the retention decisions of participants. This correlates to two of the five factors that had means above the aforementioned threshold of 75. Both XO/CO leadership and the PSS of XO/COs had

means above 83, indicating the importance of leadership to the DV. Of particular importance, 63% of those who have decided to leave cited PSS as an 80 or greater. In terms of overall XO/CO leadership, 84% of those leaving ranked this variable as having a significant impact (>80) on their decision. In terms of nonflying duties, 84% of those deciding to leave the naval service cited nonflying duties as significantly affecting their retention decision.

Further Research

While this study revealed several trends, there are several questions that must be answered in future studies. In order to increase the generalization of the data, a larger sample size coupled with more qualitative interviews must be examined in order to increase the breadth of understanding around individual views and validate the findings of this study. With the subsequent analysis of the qualitative interviews, it would be beneficial for multiple coders to analyze the interview transcripts in order to calculate inter-rater reliability. This will ensure the validity of the factors integrated into the quantitative survey. Secondly, in order to assess whether these factors actually affected or changed an aviator's decision, data from exit surveys as well as from those who chose to continue their military service is needed to validate whether the factors analyzed in this study actually contributed to their decision. This would enable a multivariate regression analysis to predict whether these factors actually affected the decision. However, this research design did not attempt to do this due to a lack of access to data from recently separated aviators.

Additionally, the data indicated that family (spouse and children) could potentially have an intervening effect on the DV. At the conclusion of the survey, there was one ordinal question asking respondents to rank the number one factor they were considering when deciding to stay in or leave the Navy. The options were the economy, family, job satisfaction, and other 48% of

respondents cited family as being the number one factor affecting their decision with 63% of those stating that they were leaving the military citing family concerns as the primary factor. This conflicts with the overwhelming majority who cited factors directly tied to job satisfaction as the primary factors affecting the retention decision. This could be reflective of a relationship between job satisfaction and family considerations where certain family compositions influence one's perception of job satisfaction and consequently, the decision to stay in or get out. However, the research design did not attempt to examine how being married or having children may affect one's job satisfaction and subsequent decision to stay or leave the USN.

Implications

The implications of this study are far reaching touching the fields of HRM in relation to the retention of Naval Aviators as well as national security in terms of the warfighting capabilities of the Naval Air Forces. The primary tools employed to mitigate the retention problem by the military are financial in nature, which reveals an assumption that a correct financial incentive package will lead aviators to stay in the military.[45] However, the results from this study call this logic into question. If the majority of aviators consider financial incentives the least, then programs like ACIP will do little to solve the problem. However, if military leadership recognizes that the primary concerns of aviators are not economic or financial in nature, then they can implement strategies to resolve the underlying issues present within each factor. For example, according to the data from this study, mission fulfillment, and the amount of time spent on nonflying duties, and squadron leadership most greatly affected the retention decision of Naval Aviators.

[45] H.A.S.C. 2017.

Squadron Leadership

As indicated by the literature on retention in the civilian sector, PSS has one of the greatest impacts on an employee's job satisfaction and their intent to remain with an organization. The results of this study confirm that this applies to Naval Aviators as well. Both variables dealing with squadron leadership factored the most in participants answers to the quantitative survey as well as in the interviews. The comments from participants on the survey as well as in the interview indicated that squadron leaders have a significant impact on whether an aviator decides to stay in or leave the Navy. While it is easy to say that good leaders are required for any organizations' success, the data of this study indicates that "good leaders" are instrumental in increasing job satisfaction of junior officers. On the other hand, "bad leaders" are equally instrumental in decreasing job satisfaction. As mentioned earlier, the majority of respondents cited leadership as being in the top three most important factors when considering to stay or leave. Thus, senior leadership must see the investment in squadron leaders as directly influencing the retention of its junior officers.

Furthermore, in both the qualitative and quantitative comments, there seemed to exist an underlying current of mistrust amongst junior officers and senior leadership especially on the issue of retention. The views were overwhelmingly negative in the assessment of the ability of senior leadership to fix the issue or even address junior officers' concerns. Events like the junior officer symposium or the JO call at Tailhook were viewed as a farce and mere attempts by senior leadership to placate junior officers instead of truly desiring to take junior officer feedback. Whether or not this is reflective of what senior leadership is actively doing, senior leaders must take note. Perception is reality and the perception of junior officers is that senior leaders are neither listening nor doing enough. Additionally, it would be wrong to fall into the age old trap

of merely dismissing junior officer concerns based on an assumption that they do not know enough or are not mature enough to understand the bigger picture. If indeed there is a bigger picture, it is up to senior leaders to effectively communicate the bigger picture to junior officers

Consequently, I recommend senior leadership, specifically that the Chief of Naval Air Forces must become more active in communicating what he is doing to fix the retention issue. Junior officers understand that every issue or concern cannot be simply fixed. However, they do desire leaders who are standing up for them and communicating what they are doing on a more frequent basis. While this may not fall in line with the leadership styles of the past, times have changed. Leadership must continue to adapt to the people they lead. Otherwise, they risk alienating the very people required to accomplish the mission.

Nonflying Duties

Since the 2017 H.A.S.C. discussion on military retention, there have been no visible reduction in the number of ground jobs for junior officers in USN TACAIR squadrons. On average, the participants in this study stated that they spent over 60% of their workday tending to jobs that have no direct influence on their skill as a fighter pilot. If the goal of USN TACAIR aviation is to be the most lethal air force on the face of the earth, pilots should be devoting the vast majority of their day training and perfecting their skills as a Navy fighter pilot. This study indicated that the amount of nonflying duties continues to adversely affect the people who are supposed to be the most tactically proficient – junior officers. Furthermore, a perceived lack of any attempt by senior leadership to mitigate this, continues to decrease job satisfaction. Junior officers in both the qualitative and quantitative components of this study continually stated a desire to become better tactical aviators; however, the presence of ground jobs continues to adversely affect their ability to do so.

Thus, I recommend that senior leadership must examine three possible strategies to mitigate the adverse impact of nonflying duties on both the tactical capabilities and retention of TACAIR aviators. First, the USN must look to revamp how squadrons are staffed in terms of qualified support personnel who can alleviate the responsibilities required of aviators that do not directly tie to tactical effectiveness. Second, senior Navy leadership must communicate to prospective squadron leaders that the most important metric by which they will be judged is the tactical effectiveness of their squadron. By valuing tactical expertise over administrative skills, senior leadership will naturally breed more skilled warfighters than average combat aviators who happen to be average administrative managers as well. Additionally, senior leadership must empower squadron leadership to implement creative strategies to reduce the burden of these jobs on pilots. If junior officers are given the freedom to devote their time to becoming more tactically proficient, squadrons and the Naval Air Forces in general will become more lethal in addition to pilots having greater job satisfaction and a sense of mission fulfillment.

It is important at this point to articulate what I am not saying. I am not arguing for a complete removal of all collateral leadership and administrative duties from junior officers. The leadership opportunities provided to junior officers are crucial in the development of effective leaders, who will one day lead squadrons of their own. However, the respondents of this study highlighted an imbalance in the amount of time and the priorities given to jobs. For example, a brand new squadron pilot should be spending the majority of his/her day learning tactics, not spending 5-7 hours writing a schedule. The aforementioned strategies are meant to serve as a starting point to increase efficiency and reduce the administrative burdens on junior officers, which will in turn lead to more lethal Naval Aviators and potentially an increase in retention of Naval Aviation's greatest asset.

Conclusion

This study elucidated that overall job satisfaction most affected USN TACAIR aviators' decisions on whether to remain or leave the military, even more so than the state of the economy and airline hiring. Additionally, it sought to provide a current pulse of how junior officers viewed the most pertinent factors when deciding to stay in or leave the military, which could provide a foundation for further study. Through inductive mixed methods analysis of both the interview and survey results, I discovered that the majority of USN aviators surveyed cited having a sense of mission fulfillment as the greatest determinant when it comes to deciding whether to stay or leave. Furthermore, the data specifically illustrated that one's experience with squadron leadership and nonflying duties affected their sense of job satisfaction.

TACAIR aviators comprise some of the most crucial components of the military and are a significant force in terms of power projection and enforcement of U.S. policy.[46] However, if the military continues to neglect fixing the issues that TACAIR aviators are concerned with the most, then the efficacy of these critical components will continue to atrophy and be reduced. This study blended studies in the traditional HRM fields with the national security implications of not having the most capable Naval Air Force. While this study is merely a starting point, much work has to be done in order to verify these results across a wider sample size and whether mitigation of these factors will increase retention rates. Yet, this much is clear, a failure to act will deprive the U.S. military and the American people of the best fighter pilots in the world.

[46] H.A.S.C. 2017.

Bibliography

Aguinis, Herman, and Kurt Kraiger. "Benefits of Training and Development for Individuals and Teams, Organizations, and Society." *Annual Review of Psychology* 60, no. 1 (2009): 451–74. https://doi.org/10.1146/annurev.psych.60.110707.16350.

Bateman, Thomas S., and J. Michael Crant. "The Proactive Component of Organizational Behavior: A Measure and Correlates." *Journal of Organizational Behavior* 14, no. 2 (1993): 103–18. https://doi.org/10.1002/job.4030140202.

Bellante, Don, and Philip Porter. "Public and Private Employment Over The Business Cycle: A Ratchet Theory of Government Growth." *Journal of Labor Research* 19, no. 4 (1998): 613–28. https://doi.org/10.1007/s12122-998-1052-9.

Chang, Mei-Chung, Ting-Hsuan Lee, and For-Wey Lung. "Personality Characteristics of Fighter Pilots and Ground Personnel." *Military Psychology* 30, no. 1 (2018): 70–78. https://doi.org/10.1080/08995605.2017.1420977.

Dysvik, Anders, and Bård Kuvaas. "The Relationship Between Perceived Training Opportunities, Work Motivation and Employee Outcomes." *International Journal of Training and Development* 12, no. 3 (2008): 138–57. https://doi.org/10.1111/j.1468-2419.2008.00301.x.

Eisenberger, Robert, Florence Stinglhamber, Christian Vandenberghe, Ivan L. Sucharski, and Linda Rhoades. "Perceived Supervisor Support: Contributions to Perceived Organizational Support and Employee Retention." *Journal of Applied Psychology* 87, no. 3 (2002): 565–73. https://doi.org/10.1037/0021-9010.87.3.565.

Eisenberger, Robert, Stephen Armeli, Barbara Rexwinkel, Patrick D. Lynch, and Linda Rhoades. "Reciprocation of Perceived Organizational Support." *Journal of Applied Psychology* 86, no. 1 (2001): 42–51. https://doi.org/10.1037/0021-9010.86.1.42.

Farrell, Brenda S. Rep. *Collecting Additional Data Could Enhance Pilot Retention Efforts*. Washington, D.C.: Government Accountability Office, 2018.

Farrell, Brenda S. Rep. *DOD Needs to Reevaluate Fighter Pilot Workforce Requirements*. Washington, D.C.: United States Government Accountability Office, 2018.

Fletcher, Luke, Kerstin Alfes, and Dilys Robinson. "The Relationship Between Perceived Training and Development and Employee Retention: The Mediating Role of Work Attitudes." *The International Journal of Human Resource Management* 29, no. 18 (2016): 2701–28. https://doi.org/10.1080/09585192.2016.1262888.

Fletcher, Luke. "How Can Personal Development Lead to Increased Engagement? The Roles of Meaningfulness and Perceived Line Manager Relations." *The International Journal of*

Human Resource Management 30, no. 7 (2016): 1203–26. https://doi.org/10.1080/09585192.2016.1184177.

Hansen, Michael L. and Michael J. Moskowitz. Rep. *The Effect of Compensation on Aviator Retention*. Alexandria, VA: CNA, 2006.

Lee, Chay Hoon, and Norman T. Bruvold. "Creating Value for Employees: Investment in Employee Development." *The International Journal of Human Resource Management* 14, no. 6 (2003): 981–1000. https://doi.org/10.1080/0958519032000106173.

Locke, Edwin A. "The Nature and Causes of Job Satisfaction." In *Handbook of Industrial and Organizational Psychology* 2nd ed., edited by Marvin Dunnette, 1297-1349. Palo Alto, CA: Consulting Psychologists Press, 1990.

Mattock, Michael G., James R. Hosek, Beth J. Asch, and Rita Karam. *Retaining U.S. Air Force Pilots When the Civilian Demand for Pilots Is Growing*. Santa Monica, CA: RAND Corporation, 2016.

Maue, Brian E. A. "Why We Should End the Aviator Continuation Pay Bonus Program." *Air & Space Power Journal*, 2008, 95–104.

Meredith, Sam. "Boeing CEO Says a Global Pilot Shortage Is 'One of the Biggest Challenges' Facing the Airline Industry," June 18, 2019. https://www.cnbc.com/2019/06/17/boeing-ceo-says-global-pilot-shortage-is-one-of-the-biggest-challenges.html.

Paul, A.k., and R.n. Anantharaman. "Impact of People Management Practices on Organizational Performance: Analysis of a Causal Model." *International Journal of Human Resource Management* 14, no. 7 (2003): 1246–66. https://doi.org/10.1080/0958519032000145648.

Prabhu, Veena P. "Proactive Personality and Organizational Change: Factors Affecting Retention." *Journal of Organizational Psychology* 16, no. 1 (2016): 11–23.

Ramlall, Sunil. "Managing Employee Retention as a Strategy for Increasing Organizational Competitiveness." *Applied H.R.M. Research* 8, no. 2 (2003): 63–72.

Rhoades, Linda, Robert Eisenberger, and Stephen Armeli. "Affective Commitment to the Organization: The Contribution of Perceived Organizational Support." *Journal of Applied Psychology* 86, no. 5 (2001): 825–36. https://doi.org/10.1037/0021-9010.86.5.825.

Russell, James A. "A Circumplex Model of Affect." *Journal of Personality and Social Psychology* 39, no. 6 (1980): 1161–78. https://doi.org/10.1037/h0077714.

Schleicher, Deidra J., Duane S. Hansen, and Kevin E. Fox. "Job Attitudes and Work Values." In *APA Handbook of Industrial and Organizational Psychology* 3, edited by Sheldon Zedeck, 3:137–89. Washington, DC: American Psychological Association, 2011. https://doi-org.proxy1.library.jhu.edu/10.1037/12171-004

Snodgrass, Guy M. “Keep A Weather Eye On The Horizon.” *Naval War College Review* 67, no. 4 (2014): 64–92.

Stone, Brice, Vince Wiggins, Kathryn Turner-Holland, and Larry T. Looper. “Air Force Pilot Retention: Evaluating the Results of Alternative Models.” *Armed Forces & Society* 25, no. 1 (1998): 121–35. https://doi.org/10.1177/0095327x9802500107.

Curriculum Vitae

Aaron Trodahl was born in 1989 in Long Beach, CA. He graduated with a BS in Aviation from Westminster College in Salt Lake City, UT in 2011. Additionally, he graduated with an MA in Theological Studies from Liberty University in Lynchburg, VA in 2018. He anticipates graduating in August 2020 with an MA in Global Security Studies from Johns Hopkins University in Washington D.C. He has been employed by the United States Navy as a commissioned officer for the last 10 years. His primary duties involve flying the F/A-18 Super Hornet, which has led to his participation in numerous international exercises and one combat deployment in support of Operation Inherent Resolve.